

CLAIMS

1. (amended) 1. A TDMA radio communication system that uses a multiple subcarrier modulation method and that comprises at least a first and a second radio station, wherein

said first radio station carries out communications carries out communication by selecting and then modulating only a subcarrier with which a desired transmission rate can be obtained in said second radio station.

2. The TDMA radio communication system according to claim 1, wherein said second radio station comprises:

a power detection means for detecting the received power for each subcarrier and detecting the interference power from another radio station with which said second radio station is communicating; and

a notification means for notifying said first radio station of information regarding said received power and said interference power detected by said detection means, and wherein

said first radio station comprises:

a subcarrier selection means for selecting, based on a reception state and an interference state of each subcarrier that have been returned from said second radio station, only a subcarrier with which a desired transmission rate can be achieved in said second radio station, wherein only the subcarrier that has been selected by said subcarrier selection means is selected and modulated for communication.

3. The TDMA radio communication system according to claim 2, wherein said power detection means comprises an interference power determination means, a memory means, and a calculation means, wherein said first radio station is grouped with other first radio stations that provide interference in a communication area of said first radio station, wherein said interference

power determination means extracts or calculates, upon transmission of a notification signal from each of said grouped first radio stations one by one successively, an interference power state for each subcarrier of said second radio station, wherein the calculated value is stored in said memory means, and wherein said calculation means calculates a ratio of a desired wave power to an interference power for each subcarrier.

4. The TDMA radio communication system according to claim 2, wherein said power detection means comprises an interference power measuring means and a calculation means, wherein said first radio station is grouped with other first radio stations that provide interference within a communication area of said first radio station, wherein each of said grouped first radio stations transmits a notification signal at the same time, wherein said interference power measuring means measures, upon termination of the transmission from said first radio stations one by one successively and periodically in a cyclic manner, the interference power of said first radio stations other than said first station with which said second radio station is communicating, for each subcarrier, and wherein said calculation means calculates a ratio of a desired wave power to an interference power for each subcarrier.

5. A second radio station in a TDMA radio communication system that uses a multiple subcarrier modulation method and that comprises at least a first radio station and said second radio station, in which system said first radio station conducts communications by selectively modulating a subcarrier with which a desired transfer rate can be obtained in said second radio station, said second radio station comprising:

a power detection means for detecting a received power for each subcarrier and an interference power from a radio station other than said first

radio station with which said second radio station is communicating, for each subcarrier; and

a notification means for notifying said first radio station of information regarding said received power and said interference power detected by said power detection means.

6. A first radio station in a TDMA radio communication system that uses a multiple subcarrier modulation method and that comprises at least said first radio station and a second radio station, in which system said first radio station conducts communications by selectively modulating a subcarrier with which a desired transfer rate can be obtained in said second radio station, said first radio station comprising:

a subcarrier selection means for selecting, based on a reception state and an interference state for each subcarrier returned from said second radio station, a subcarrier with which a desired transmission rate can be achieved in said second radio station; and

a switch means for turning on and off of modulation on a subcarrier basis.

7. The TDMA radio communication system according to claim 2, wherein said second radio station comprises a comparison means for determining a ratio of the received power of said first radio station as a current control station to that of another first radio station, said second radio station further provided with a soft handoff function whereby, if the value of the ratio determined by said comparison means drops below a predetermined threshold value, the management of said second radio station is transferred from the current first radio station to a next first radio station, wherein

said soft handoff function determines, for each subcarrier, if a value detected by a detection means provided in said second radio station for

detecting the received power of the current first radio station and the next first radio station base station, and the interference power from another station for each subcarrier corresponds to:

Condition 1: The value of $C/(N+I)$ of said current first radio station is larger than the value of $C/(N+I)$ of said next first radio station;

Condition 2: The value of $C/(N+I)$ of said next first radio station is larger than the value of $C/(N+I)$ of said current first radio station; or

Condition 3: $C/(N+I)$ is equal for both said current first radio station and said next first radio station,

said soft handoff function carrying out a handoff control based on the result of the determination, where C is received power, N is noise power, and I is interference power.

8. The TDMA radio communication system according to claim 7, wherein the handoff control based on the result of said determination is carried out mainly by said current first radio station if the sum of the number of subcarriers of said Conditions 1 and 3 is larger than the number of subcarriers of said Condition 2, and mainly by said next first radio station if the sum of subcarriers of said Conditions 2 and 3 is larger than the number of subcarriers of said Condition 1.

9. (added) A TDMA radio communication system utilizing a multiple subcarrier modulation method and comprising at least a first and a second radio station, wherein

said second radio station detects such a frequency band on a subcarrier basis in a time slot of a notification signal transmitted by said first radio station that the power of a desired wave is greater than a sum of the power of an interference wave and that of noise by a predetermined value, and

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said first radio station modulates only the subcarrier of the frequency band detected by said second radio station and then communicates with said second radio station.

10. (added) A TDMA radio communication system utilizing a multiple subcarrier modulation method and comprising at least a first and a second radio station, wherein

said second radio station detects a frequency band on a subcarrier basis that exists in frequency bands in a time slot in a notification signal transmitted by said first radio station, said frequency band with which the power of the a desired wave (C) exceeds a predetermined value such that it can be used commonly by all of the time slots, with respect to a sum (N+I) of the total interference power and noise (N), wherein the power of a desired wave (C) and the power of an interference wave (I) from an interference station as the object of interference are determined from the notification signal, wherein

said first radio station modulates only the subcarrier of the frequency band detected by said second radio station and then communicates with said second radio station.

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